(IEGM) -based method and echocardiography and assess whether the acute hemodynamic effects achieved by modified IEGM-based method are more effective and more accurate comparing with the traditional IEGM-based method.
Methods: A total number of 20 patients with congestive heart failure implanted with IEGM-based functioned CRT/CRT-D were enrolled. The follow-up period for all the patients after CRT was 1, 3 and 6 months. Modified IEGM -based method, traditional IEGM -based method and echocardiography respectively was used to achieve the optimized VV delays and assessed the improvement degree of acute hemodynamic effects by the three different methods.
Results: The results showed the optimized VV delays achieved by modified IEGM-based method have better agreement and correlation with the echocardiographic optimization comparing with the traditional IEGM-based method. The parameter of left ventricular ejection fraction (LVEF) by modified IEGM-based method was independently related to more favorable outcomes than the traditional echocardiography during the 1, 3 and 6 months follow-up period (0.31±0.07 vs 0.29±0.08, 0.37±0.07 vs 0.34±0.08, 0.45±0.07 vs 0.42±0.08 P<0.05). Moreover, the degree of the mitral regurgitation decreased markedly by modified IEGM-based method in 6 months follow-up after CRT (2.08±1.78 vs 2.64±2.37, P<0.05). However, there was no statistically significance between the traditional IEGM method and modified IEGM-based method in A Wave Velocity-time Integral (VTI_{Ao}) and the degree of the mitral regurgitation in 1, 3 months follow-up after CRT (P>0.05).
Conclusions: (1) The optimized VV delays achieved by modified IEGM-based method have better agreement and correlation with the echo optimization comparing with the traditional IEGM-based method. (2) The optimized VV delays achieved by modified IEGM-based method have better acute hemodynamic effects.

GW25-e2222

Relationship of Thickness of Left Atrial Epicardial Adipose Tissue and Atrial Fibrillation

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Objectives: Obesity is an important risk factor for atrial fibrillation (AF). Epicardial adipose tissue in close anatomic proximity to cardiac structures and autonomic fibers, is a source of several inflammatory mediators related to the genesis of AF. This study is aimed to investigate the relationship of thickness of left atrial epicardial adipose tissue and atrial fibrillation.
Methods: 150 consecutive hospitalized patients with AF from the January 2008 to January 2009 underwent 16-slice spiral CT as the experimental group (48 (32%) patients with persistent AF, 102 (68%) patients with paroxysmal AF). 131 cases of non-AF patients in our outpatient for 16-slice spiral spiral CT as a control group. In a short-axis view of the mid-left atrium (LA), periatrial epicardial adipose tissue was measured at the esophagus (LA-ESO), main pulmonary artery (LA-PA), and thoracic aorta (LA-TA). Axial plane measurement of the anteroposterior diameter, sagittal measurement of the vertical diameter were performed as the LA diameter.
Results: Left atrial epicardial adipose tissue thickness in patients with persistent atrial fibrillation increased than that in patients with paroxysmal atrial fibrillation and without atrial fibrillation (all P value less than 0.05). Epicardial adipose tissue thickness in patients with persistent atrial fibrillation increased than that in patients with paroxysmal atrial fibrillation (all P value less than 0.05). Adjusted for age, sex, hypertension, diabetes, BMI and left atrial size, left trial epicardial adipose tissue thickness had relationship with AF history duration and AF burden.
Conclusions: Left atrial epicardial adipose tissue thickness was independently associated with AF duration and AF burden.

GW25-e2379

Substrate-guided Catheter Ablation of Electrical Storm after Implantation of Implantable Cardiovertor Defibrillator

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Objectives: To summarize the experience and outcomes of radiofrequency catheter ablation (RFCA) of electrical storm after implantation of implantable cardiovertor defibrillator (ICD-ES).
Methods: We reviewed 5 cases of ICD-ES who underwent RFCA guided by 3D mapping systems. All the patients received endocardial mappings, while selected patients received epicardial mappings. Both activation and substrate mappings were obtained for hemodynamically stable and persistent VTs, while only substrate mappings were obtained for hemodynamically unstable or impersistent VTs. Areas of dense scars (voltage <0.5 mV) and transitional zones (TZ, voltage between 0.5 to 1.5 mV) were calculated. Ablation targets included: (1) The earliest activation sites of focal and micro-reentrant VTs. (2) Best paced map sites. (3) Critical isthmuses. (4) Potential conduction channels within low-voltage zones (LVZ). Endpoints included: (1) No induction of persistent VTs by isoprenaline and programmed stimulation; (2) Elimination of abnormal potentials in LVZs; (3) Connection of nearby barriers.
Results: There were 2 patients with previous myocardial infarction, 2 patiants with arrhythmogenic right ventricular cardiomyopathy (ARVC), and 1 patient with normal heart structure. There induced an average of 3.4±3.0 VTs in each case with mean cycle length of 389.0±122.4 ms. Two cases only received endocardial voltage mappings of targeted ventricles and endo-cardial LVZ was found in one of them (112.0 cm^2). Three cases received both endo - (321±93 points) and epi-cardial (302±158 points) voltage mapping in targeted ventricles during SR and LVZs were detected in two of them. Epi-LVZ areas were larger than endo-LVZ areas in the two cases (100.2±17.7 cm^2 versus 48.0±41.1 cm^2). No acute adverse events were observed. None suffered from ICD shocks during an average of 24.8±13.7 months' follow-up. One patient has been hospitalized for heart failure for three times post-procedure. His present heart function is NYHA grade III, the same with pre-procedure.
Conclusions: Substrate mapping is helpful for complicated VTs due to ICD-ES.

GW25-e4375

Early clinical experience of left atrial appendix occlusion using LAmbre™ device from a 7-case series

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Objectives: Left atrial appendix is the main origin of thromboembolus that causes ischemic stroke in the patients with atrial fibrillation (AF). Percutaneous left atrial appendix occlusion (LAAO) is a potential method for prevention of stroke. In these series, we performed LAAO using novel LAmbre™ device, to detect its abilities of occlusive effectiveness, percutaneous operability and safety.
Methods: Patients with non-valvular AF that were intolerant to warfarin therapy were recruited after performing a rigorous exclusive screening. Suitable LAmbre™ device were selected by coronary angiography and released into LAA, prior to assessment of residual shunt by transesophageal echocardiography (TEE). Operability of device was evaluated by a same operator, objectively.
Results: Seven patients with non-valvular AF that received irregular warfarin therapy were selected out, after exclusion of 1 in 8 cases as existence of mural thrombus detected by TEE. Among all 7 inclusive cases, 6 were female and 1 was male, 6 were permanent AF and 1 was paroxysmal AF. The average age was 67±7. Four had a history of prior stroke and/or transient ischemic stroke. $CHADS_2$ score was 2.7±1.25 and international normalized ratio (INR) was 1.3±0.72, including only 1 reached the target (INR 2-3). Pre-procedural ejection fraction of left ventricle was 61±6.9 percent. Under continuous monitoring of TEE, all cases underwent LAAO using LAmbre™ devices. Five no, 1 slight and 1 mild residual shunts indicated all success of procedures. Average time-cost was 70±16.9 minutes. There were also satisfied evaluations of supporting, contrastive, stable and positioning abilities for the devices. These patients underwent uneventful recovery. The time between the procedure and discharge was 3±0.5 days.
Conclusions: Percutaneous left atrial appendix occlusion with LAmbre™ device was safe and effective, however, long-term follow-up should be evaluated closely.

GW25-e4609

Effects of left ventricular lead position on cardiac resynchronization therapy in heart failure of different etiologies

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Objectives: Cardiac resynchronization therapy (CRT) was an established treatment of chronic heart failure for nearly 20 years. Myocardial ischemia is an independent predictor of CRT no response, and high cardiovascular mortality after CRT and high hospitalization rate. Patients with ischemic cardiomyopathy could benefit from CRT, but occurs to a lesser degree. In addition, an optimal position can significantly improve CRT response rate, but it is not clear that weather the same left ventricular lead position in heart failure patients of different etiology would have the same effect.
Methods: From 2001 March to 2012 December, 187 heart failure patients treated with CRT and finished 6 months follow-up were enrolled in this study, the patients were from 3 medical centers. Left ventricle lead were placed through thoracic epicardium in 3 cases, the remaining 184 cases were through venous. The LV lead was implanted preferably in the lateral or posterolateral vein. Right ventricular lead positioning at septum were depended on fluoroscopic imagine and electrocardiogram, as Lieberman discribed. From coronary sinus to the apex, the heart was classified into basal, mid-ventricular (MID), and apical segments along the long axis at right anterior oblique (RAO) view of venogram. The pacemaker was programmed to maximum biventricular pacing, the output voltage were reduced as far as possible to extending battery life. Before and after the implantation of pacemaker, 12 lead ECG were recorded (25 mm/s), QRS duration in II, V1 and V6 were measured by two doctors independently.
Results: NYHA symptom class, 6-MWT, LVEDD and LVEF were significantly improved at 6 months in NICM group (P<0.01), NYHA symptom class, 6-MWT and LVEF improved in ICM group at 6 months (P<0.01), while LVEDD did not improved. The improvements in NICM were more obvious than ICM group (P<0.01). The improvement of NYHA class and LVEF in NICM group when LV lead placed in the middle segment is more obvious than placed in the basal segment (P<0.05-0.01). And the improvement of NYHA class, LVEDD and LVEF is more significant than LV lead placement in the apical segment (P<0.01), and the absolute improvement value of all heart function characters were more significant compared to the LV lead placed in basal and apical segment. In ICM group, the improvement of LVEDD when LV lead positioning in the basal segment was more obvious than in the middle segment (P<0.05), and all the indexes were improved more obviously than in apical segment (P<0.05-0.01), the absolute improvement value were more significant compared to middle and apical segment.
Conclusions: The treatment with CRT can obtain certain curative effect for heart failure patients of ICM, but not as good as NICM, especially if the left ventricular remodeling cannot reverse. The best position of LV lead in NICM was basal heart, while for ICM patients the best position is middle heart.